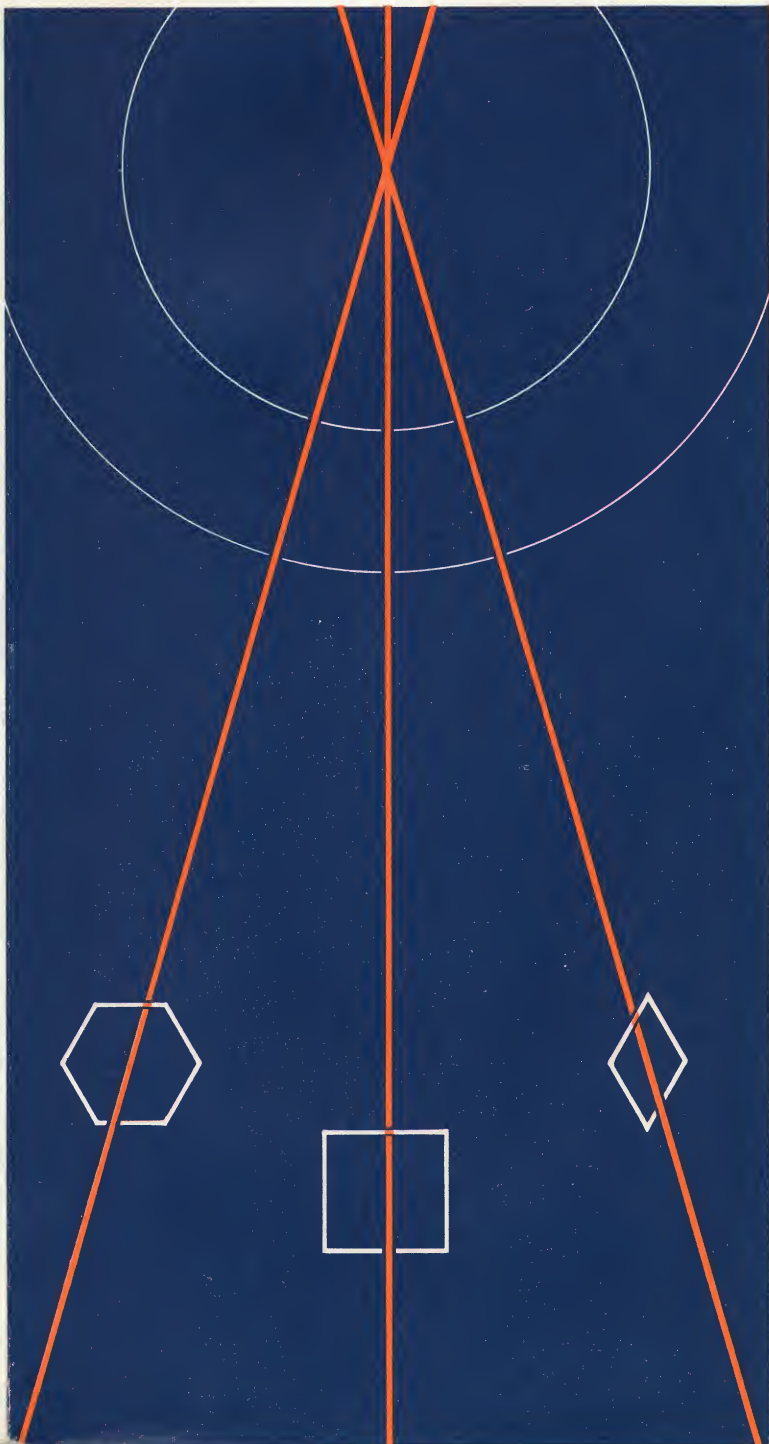


cybex
ASSOCIATES, INC.

presents

**ENGINEERING APPLICATIONS
OF OPTICAL INTERACTIONS**
June 8-10, 1970



cybex
ASSOCIATES, INC.

50 Shelley Lane, Great Neck, N. Y. 11023

**ENGINEERING APPLICATIONS
OF OPTICAL INTERACTIONS**
June 8-10, 1970
New York, N. Y.

MR THEODORE H NELSON
T NELSON SYS-CONSULTANT
P O BOX 1546
POUGHKEEPSIE N Y 12603



FIRST CLASS

A THREE DAY SEMINAR
NEW YORK • June 8-10, 1970

presented

by

cybex

ASSOCIATES, INC.

50 Shelley Lane, Great Neck, N. Y. 11023

Engineering Applications of Optical Interactions

An intensive three-day seminar for engineers, scientists, and technical management personnel whose interests are in the area of light control for systems and device applications.

A staff of four experts noted for their work in the field will provide a comprehensive survey of the fundamentals and the applications of optical interactions including the generation, modulation, and detection of optical radiation.

The seminar reviews the propagation of light in material media. The several forms of interaction are surveyed with emphasis on current and prospective applications in electro-optics.

The principles of optical modulation and deflection, mode-locking, and harmonic generation are discussed and related to problems of laser control, infrared detection, parametric amplification, and optical signal processing. Present and future application areas are surveyed.

A printed set of lecture notes of over 300 pages will be distributed to all registrants.



Cybex Associates, Inc. is a company in the field of information sciences, specializing in system design, evaluation studies, information display, graphical-data processing, and software development. Activities include contract research, consultation for industry and government, and advanced seminars for engineers, scientists and management personnel.

course outline

JUNE 8

- 9:00 a.m. OPTICAL INTERACTIONS —
DR. CARLETON
Development of basis for the interaction
of light with material media through the
properties of refractivity and absorption
- 10:30 a.m. COFFEE BREAK
- 10:45 a.m. PROPAGATION IN ANISOTROPIC
MEDIA — MR. ZERNIKE
Generalization of refractive index, tensor
properties of uniaxial and biaxial crystals
- 12:15 p.m. LUNCHEON BREAK
- 1:45 p.m. SURVEY OF OPTICAL INTERACTIONS IN
MATERIAL MEDIA — DR. CARLETON
Classification of interaction mechanisms;
modification of optical properties by
electric, magnetic, acoustic and
thermal means
- 3:15 p.m. COFFEE BREAK
- 3:30 p.m. NON-LINEAR OPTICAL MEDIA —
MR. ZERNIKE
Application of the electro-optic effect to
optical mixing and rectification; travelling-
wave interactions, phase matching

JUNE 9

- 9:00 a.m. ELECTRO-OPTIC AND ACOUSTO-OPTIC
MODULATORS — DR. ANDERSON
Shutters vs linear modulators, lumped-
circuit and travelling-wave modulators,
response limits
- 10:30 a.m. COFFEE BREAK
- 10:45 a.m. INTRA-CAVITY CONTROL OF LASERS —
DR. CARLETON
Techniques of laser frequency stabilization,
frequency modulation, mode locking,
and active Q-switching
- 12:15 p.m. LUNCHEON BREAK
- 1:45 p.m. ELECTRO-OPTIC AND ACOUSTO-OPTIC
DEFLECTORS — DR. ANDERSON
Design and performance characteristics of
digital and prism deflectors and acoustic
steering devices, limits of resolution
- 3:15 p.m. COFFEE BREAK
- 3:30 p.m. REAL-TIME OPTICAL PROCESSORS —
DR. CARLETON
Application of ultra-sonic light modulators
to signal processing, techniques of cor-
relation design and stabilization, wide-band
correlation, linear vs quadratic filtering



TUITION

Tuition for the three-day seminar, including the complete set of printed lecture notes is \$350 for the first registrant and \$315 for each additional registrant from the same organization. Checks for tuition should be made payable to CYBEX Associates, Inc., 50 Shelley Lane, Great Neck, N.Y. 11023. Reservations will be accepted in the order received. Early registration is advised since registration is limited. Registrations may be cancelled up to seven days before the start of the seminar. Substitution of another person for registrant may be made at any time.

The seminar will be conducted at the McAlpin Hotel, 34th Street and Broadway, New York, N.Y. 10001. Lectures will start each morning at 9:00 a.m. and end by 5:00 p.m.

ACCOMMODATIONS

For hotel accommodations registrants should make their own reservations at the McAlpin Hotel (a block of rooms has been reserved there and will be held until two weeks prior to the date of the course). If preferred, registrants may make their reservations at any of the other numerous hotels in mid-town New York.

LECTURERS

HERBERT R. CARLETON, Ph.D. (Course Director)
Associate professor of Engineering, Department of Materials Science, State University of New York, Stony Brook, N. Y. Formerly with Sperry Rand Corp. Research Center. Author of over 20 technical publications and consultant to industry. Research in optical and ultrasonic properties of materials, coherent detection, optical processing.

JUNE 10

- 9:00 a.m. OPTICAL DETECTION TECHNIQUES —
DR. CARLETON
Comparison of sensitivity limits of
detection systems, photon counting,
optical heterodyning, quantum detectors,
and pyro-electric devices
- 10:30 a.m. COFFEE BREAK
- 10:45 a.m. SECOND-HARMONIC GENERATION —
DR. MIDWINTER
Principles of small and large frequency
conversions, laser-rate equations with
second-harmonic generation, pico-second
pulse generation
- 12:15 p.m. LUNCHEON BREAK
- 1:45 p.m. PARAMETRIC EFFECTS—DR. MIDWINTER
Applications of parametric interactions to
frequency conversion, infra-red detection,
parametric amplification, and image
conversion
- 3:15 p.m. COFFEE BREAK
- 3:30 p.m. SURVEY OF RECENT DEVELOPMENTS
IN SOLID-STATE OPTICS
Developments in solid-state optical devices
utilizing free-carrier effects, active-wave
interactions and surface wave phenomena.
Current state of the art and implications
for future developments

LAWRENCE K. ANDERSON, Ph.D.

Head, Optical Memories and Ultrasonics Department, Bell
Telephone Laboratories. Research in magneto-optics,
electro-optics, and acousto-optics; development of optical
modulators and deflectors.

JOHN E. MIDWINTER, Ph.D.

Senior Physicist, Perkin-Elmer Corporation.
Research in lasers, harmonic generation, parametric
amplification and image conversion.

FRITS ZERNIKE, M.S.

Senior Research Physicist, Perkin-Elmer Corporation.
Research in non-linear optics and precision interferometry,
far-infrared generation, optical wave guides.

registration**ENGINEERING APPLICATIONS OF
OPTICAL INTERACTIONS**

NEW YORK • June 8-10, 1970

(DETACH AND MAIL)

Name _____

Title _____

Organization _____

Street _____

City _____

State _____ Zip _____

Telephone () _____ Ext. _____
Area Code

Additional Registrants

Name _____

Title _____

Name _____

Title _____

Mail registration application
with tuition check or purchase order to
CYBEX Associates, Inc.
50 Shelley Lane, Great Neck, N.Y. 11023